

***BENTON COMPRESSOR STATION  
CHARACTERIZATION REPORT***

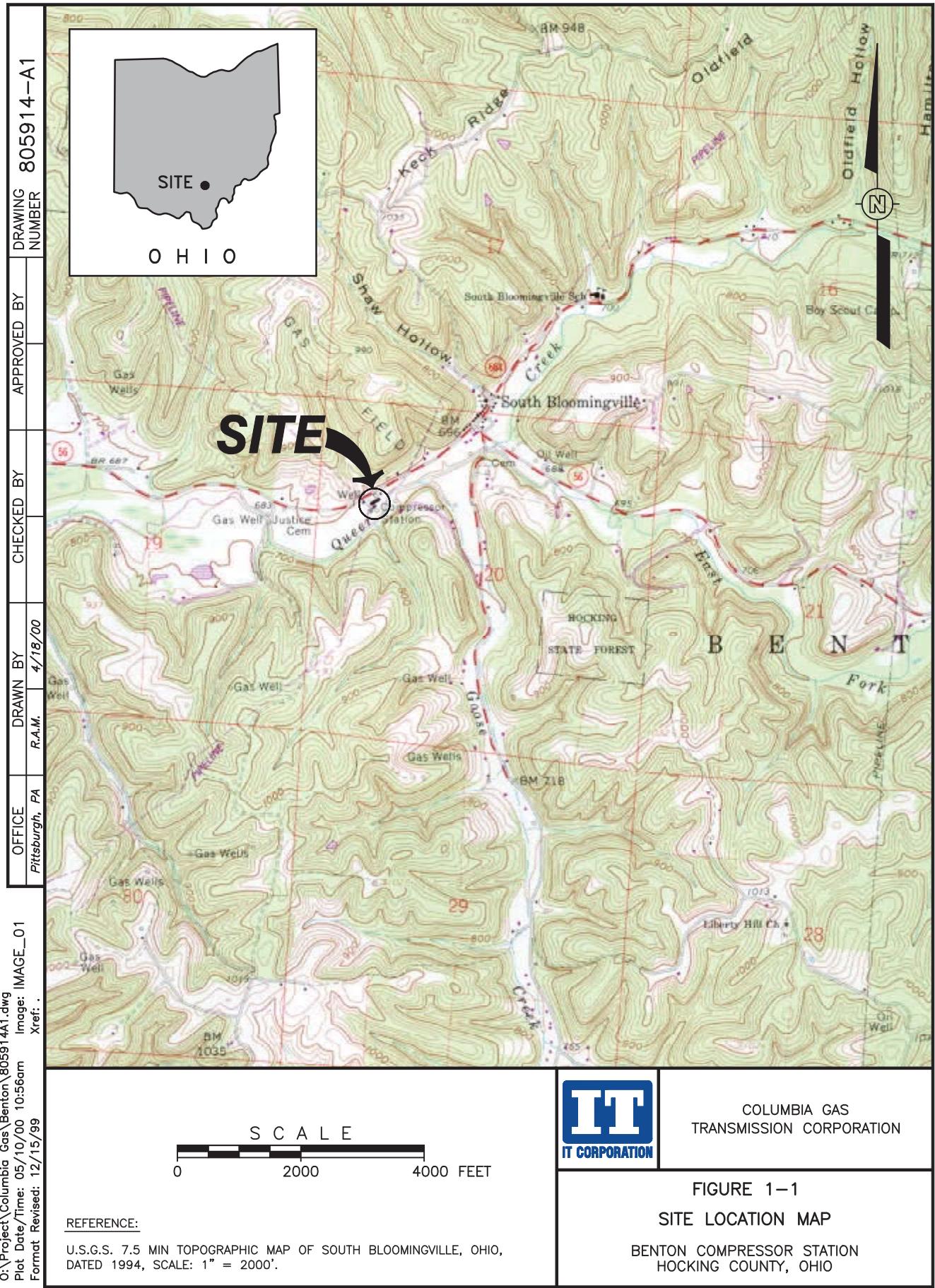
*Benton Township, Hocking County, Ohio*

*31 October 2001  
(Revision No. 1: 15 March 2002)*

*Prepared for Columbia Gas Transmission Corporation*

*By:*

*IT Corporation  
Environmental Standards, Inc.  
SE Technologies, Inc.*



## **2.4     *Geology and Soils***

The geology of the site is presented in Figure 2-1 (Geologic Site Map). Underlying overburden soil at the site is Mississippian-age sedimentary bedrock of the Waverly and Maxville Formations. These formations consist of shale, sandstone, and limestone (Geologic Map of Ohio, 1981).

Soils underlying the site belong to the Chagrin-Orrville-Otwell Association. These soils are deep, nearly level to moderately steep, and well drained to somewhat poorly drained. They are formed in alluvium, loess, and lacustrine deposits on floodplains and terraces. A typical profile consists of brown, friable silt loam about 16 inches thick overlying subsoil that is dark yellowish brown, friable silt loam and loam about 27 inches thick. This dark yellowish brown silt loam overlies substratum that is yellowish brown, friable and loose stratified loam, fine sandy loam, and loamy fine sand to a depth of about 80 inches. Permeability is moderate in the Chagrin Soil. The seasonally high water table is encountered at depths of 48 inches to 72 inches during extended wet periods (Soil Survey of Hocking County, Ohio, 1989).

## **2.5     *Hydrogeology and Groundwater Quality***

Groundwater in the area is transported through and is stored in the pore space of the unconsolidated alluvium and consolidated bedrock. Porosity in alluvial sediments results from intergranular pore spaces (primary porosity). In consolidated rock, these pore spaces are reduced substantially through compaction and cementation while porosity attributable to joints and bedding plane partings (secondary porosity) becomes significant.

Aquifers in the Appalachian Plateaus Physiographic Province can be divided into two categories; the surficial aquifer system in unconsolidated deposits and the aquifers in consolidated rocks. The unconsolidated sand and gravel of the surficial aquifer system overlies the aquifers in consolidated rocks along the Ohio River and its tributaries. Sand and gravel aquifers of the surficial aquifer system in Ohio are the most productive aquifers in the Appalachian Plateaus Province because the aquifers are highly permeable and easily recharged. Well yields in sand and gravel deposits commonly range from 100 gallons per minute (gpm) to 500 gpm but might exceed 2,000 gpm.

In Ohio, Mississippian aquifers are mostly in sandstones. Withdrawals from these aquifers can induce recharge from the directly overlying surficial aquifer system. In these areas, yields of wells completed in the Mississippian aquifers can tend to be greater than elsewhere. Mississippian aquifers also are an important source of water in stream valleys where the overlying Pennsylvanian rocks are thin or absent. In stream valleys, recharge from alluvial valley fill tends to increase yields of wells completed in the underlying Mississippian aquifers.

Water from the surficial aquifer system in this area is predominately a calcium bicarbonate type. The water generally has larger concentrations of dissolved solids, chloride, and sulfate and is harder than water from the aquifers in consolidated rocks in the same area. Iron concentrations also tend to be higher in water from the surficial aquifer system and generally increase with depth.

Water from sandstone aquifers that contain few soluble minerals generally is soft, whereas hard water is obtained from limestone or shale that contain more of the soluble minerals calcite and dolomite. Water in deeper parts of the aquifers tend to be more mineralized than water from shallow depths because the deeply circulating water has followed longer flow paths and has been in contact with aquifer materials for a longer period of time (Groundwater Atlas of the United States, USGS 1995).

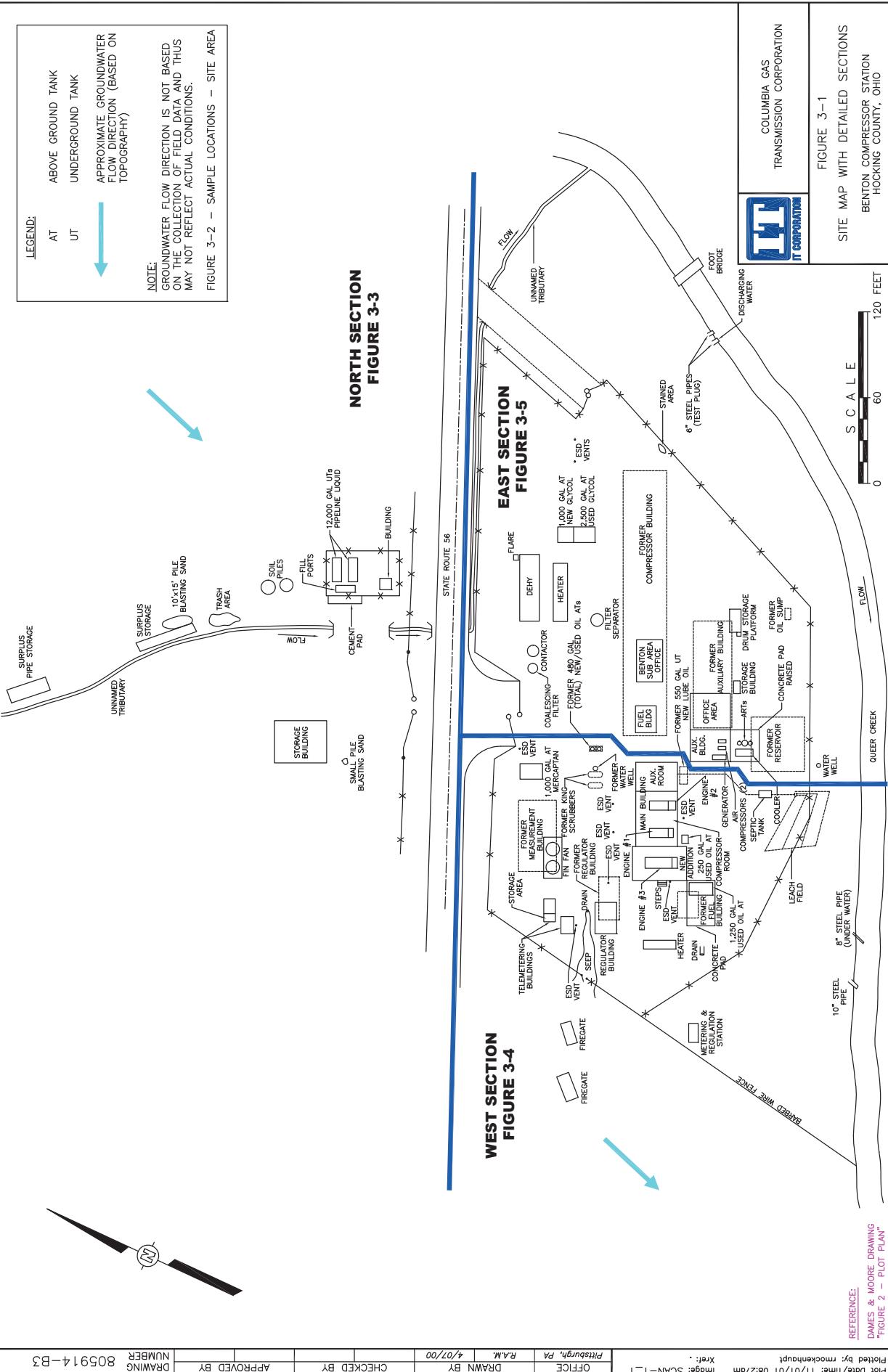
Information obtained from Banks Information Solutions, Inc. (Banks) indicated that there are five private water supply wells located within a 0.5-mile radius of site. All five wells are located to the northeast and hydraulically upgradient with respect to the site. These wells are constructed with 5-inch diameter casings installed to depths ranging from 19.25 feet to 33 feet and open holes to depths ranging from 37 feet to 48 feet. A former water well located onsite is also identified in the Banks report. This well is located near the center of the operational area of the site and is constructed with 5-inch diameter casing to a depth of 31 feet. The log for the well indicates that the well withdraws groundwater from a sand and gravel formation. A map showing well locations and construction details are provided in Appendix C.

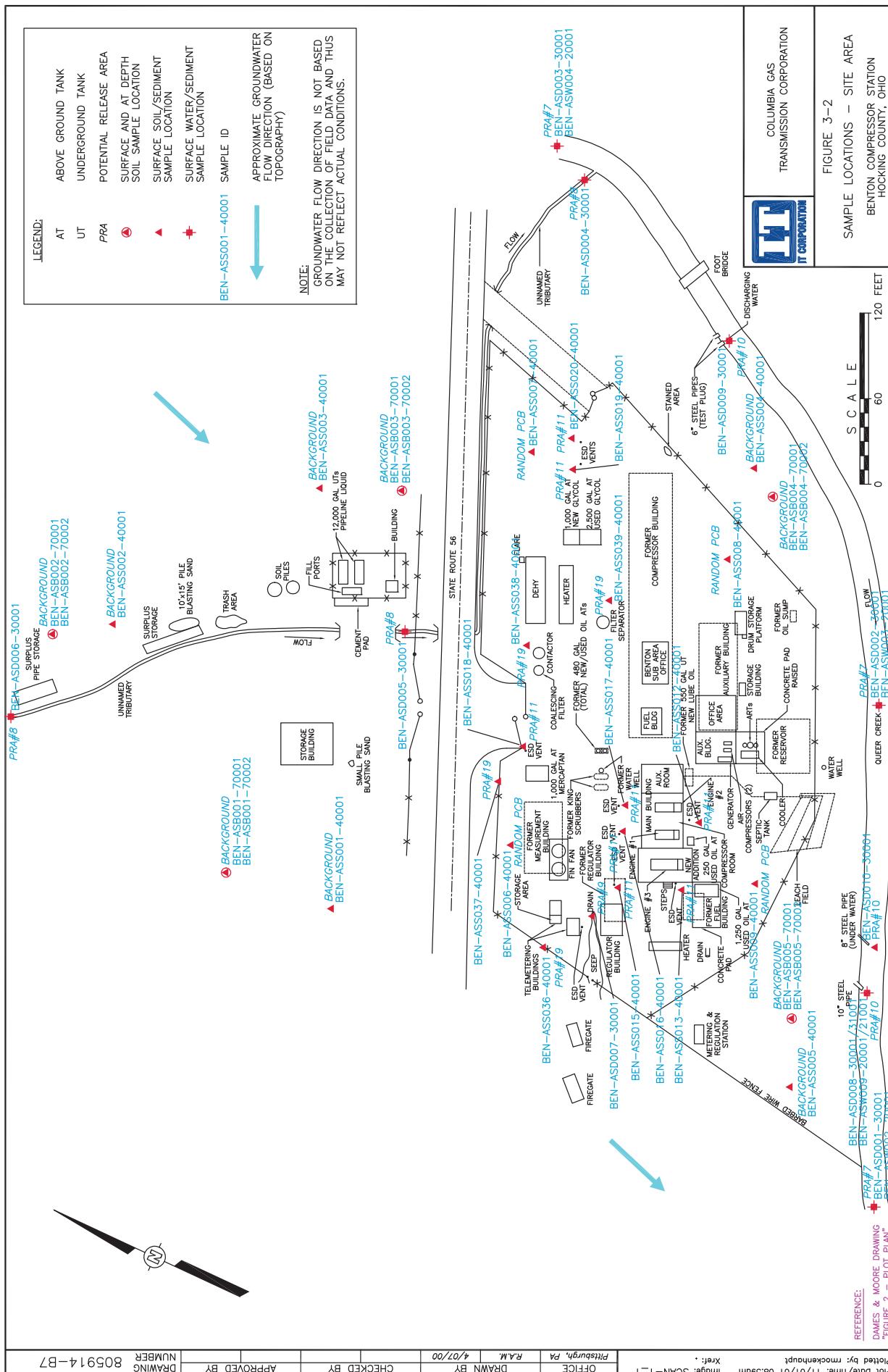
The water well currently in use at the facility is located immediately outside the site's southern fence line. This well was not identified in the Banks report and information on the construction details was not available at the time of this writing.

An approximate groundwater flow direction has been estimated based on surface topography and is depicted on Figure 1-2. Since the groundwater flow direction shown on the map is not based on the collection of field data, it may not represent actual conditions.

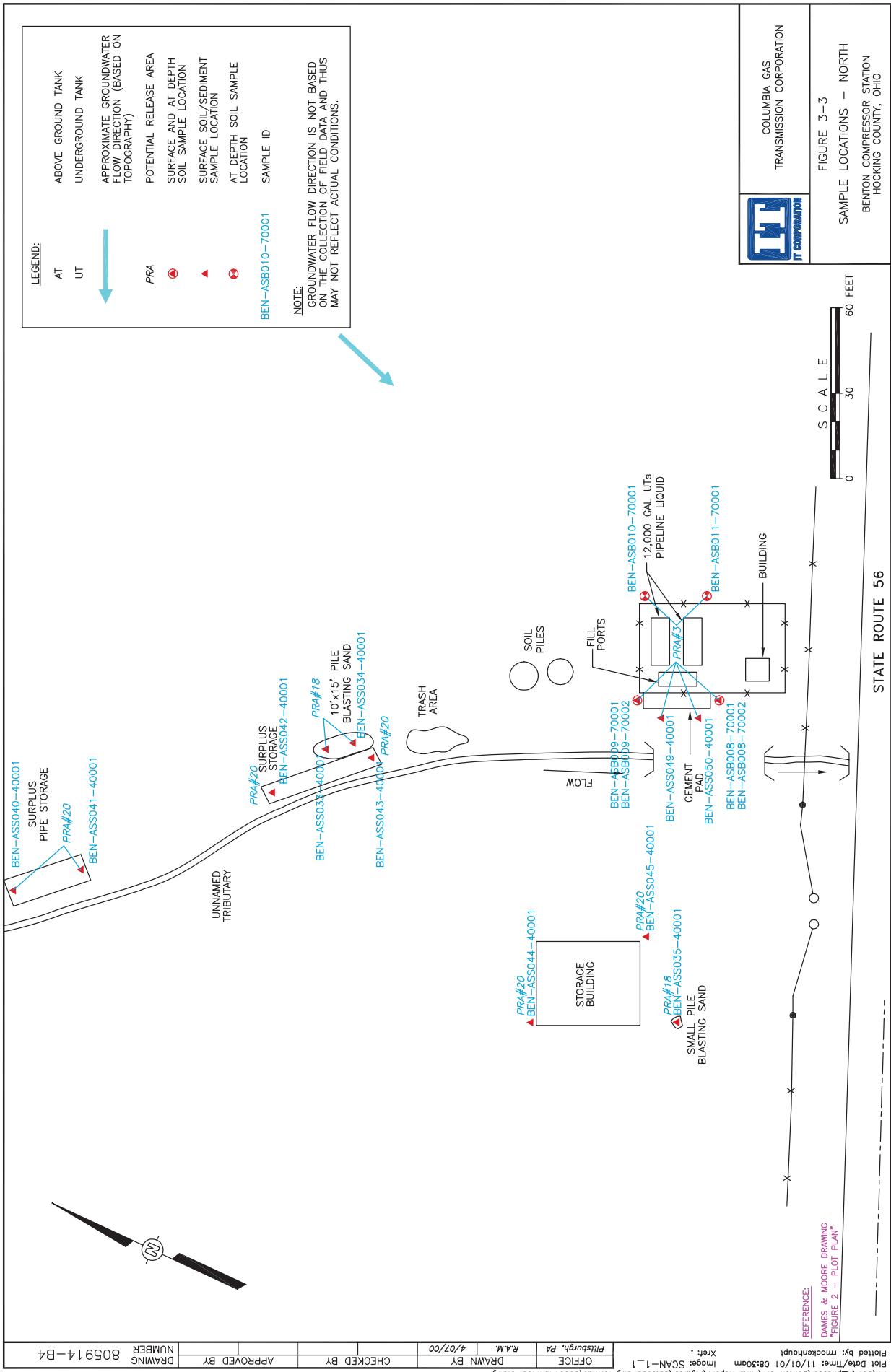
## ***2.6 Ecological Zones***

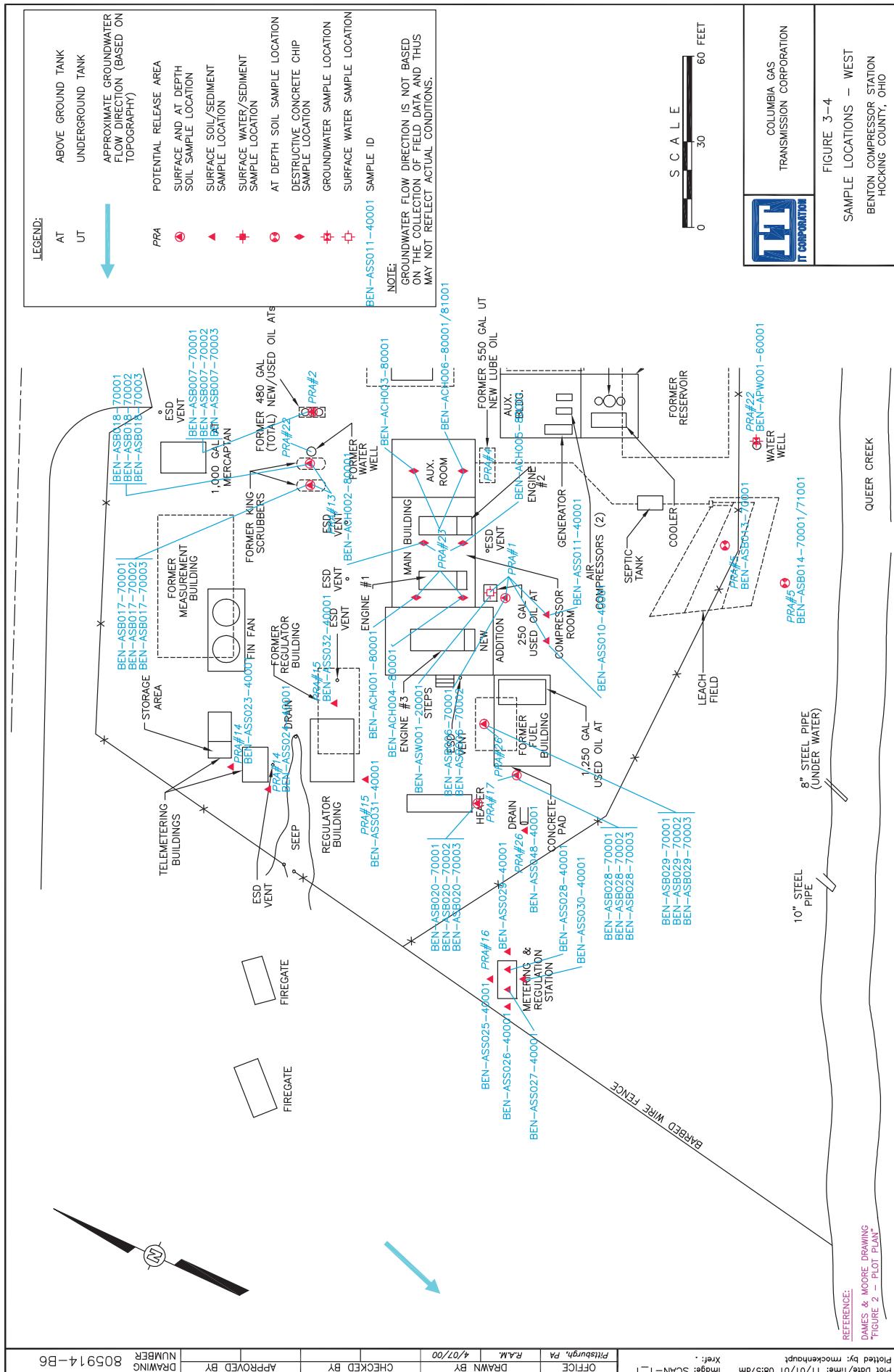
The operational portion of the Benton Compressor Station, located in Hocking County, Ohio, is estimated to be approximately 3.9 acres. A level one ecological assessment (literature review) was performed for the site. This assessment included site information derived from site reconnaissance, previous site investigations, site information from Columbia personnel, and a review of the National Wetlands Inventory (NWI) Maps. In addition, Banks Information Solutions (Banks) was subcontracted by IT to identify any threatened, endangered, or any special





Pilot Date: 11/01/01      Ref: 805914-B7  
 Pilot Detail: rmckechaupt      Mfg#: SCAN-1-1  
 DRWNR: 805914-B7  
 DRAWN BY:      APPROVED BY:  
 CHECKED BY: 4/07/00  
 PA: R.A.M.  
 Pittsburgh, PA  
 DATE: 11/01/01  
 DRWNR: 805914-B7  
 Xref: .

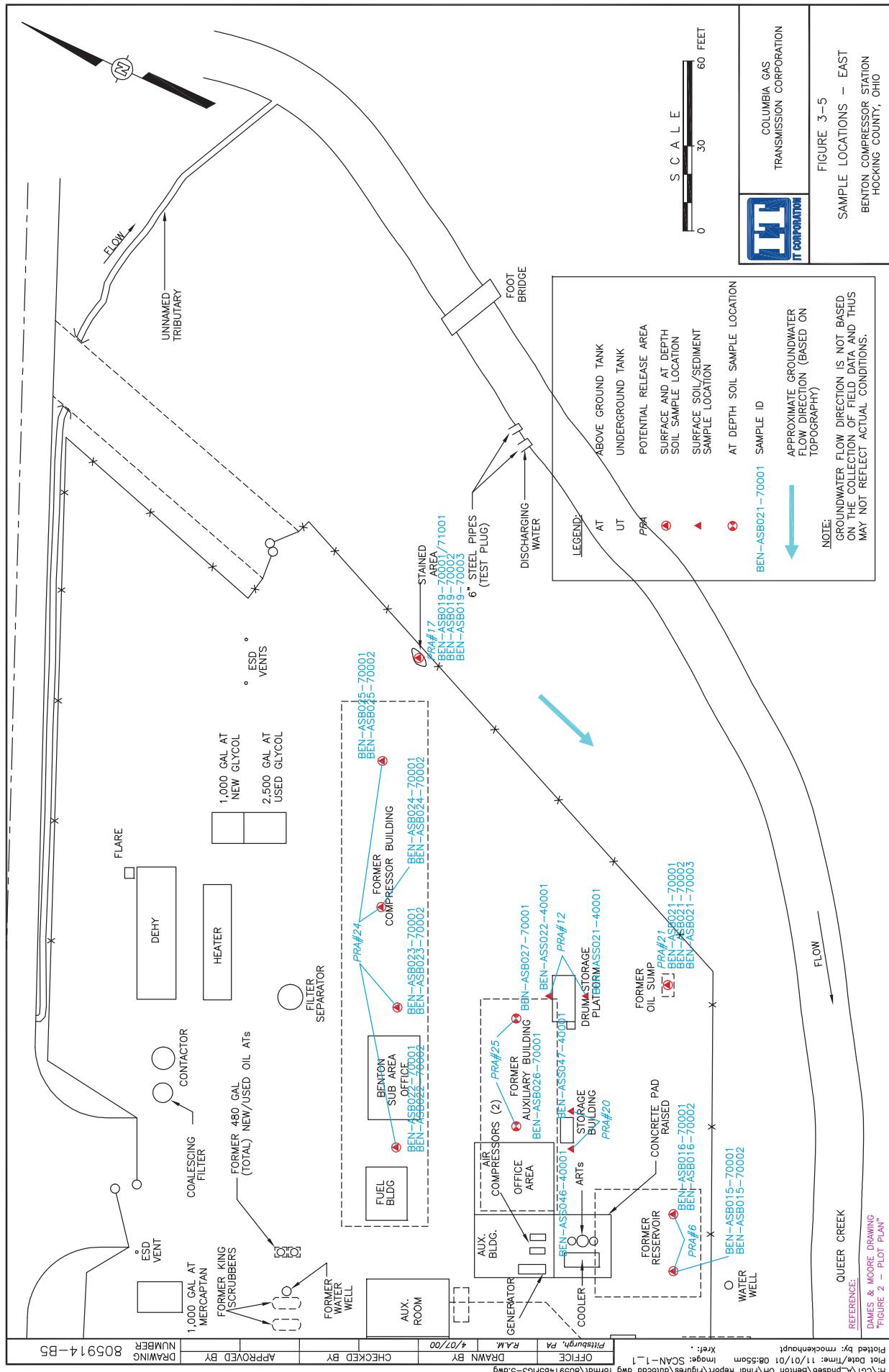




REFERE  
DAMES  
FIGURE

S & MOORE DRAWING  
RE 2 - PLOT PLAN"

SAMPLE LOCATIONS - WEST  
BENTON COMPRESSOR STATION  
HOCKING COUNTY, OHIO



**Table 4-3**  
**Summary of Analytical Results**

PRA	0				
PRA Description	Background				
Sample Type	Normal Sample				
Sample Id	BEN-ASB001-70001	BEN-ASB001-70002	BEN-ASB002-70001		
Depth - ft bgs	0 - 1	2 - 3	0 - 1		
Collected Date	09/20/00	09/20/00	09/20/00		
Laboratory	Lancaster Laboratories	Lancaster Laboratories	Lancaster Laboratories		
Sample Collector	IT Corporation (Fluor Daniel/GTI)	IT Corporation (Fluor Daniel/GTI)	IT Corporation (Fluor Daniel/GTI)		
Result Units	MG/KG	MG/KG	MG/KG		
	Analyte	Action Level	> CAL*	> CAL*	> CAL*
METAL	AROCLOR-1260	1	ND	ND	ND
	BARIUM, TOTAL	5500	67.9	126	58.4
	BERYLLIUM, TOTAL	160	ND	ND	ND
	CADMIUM, TOTAL	39	ND	ND	ND
	CHROMIUM, TOTAL	230	18.6	24.7	11.2
	LEAD, TOTAL	400	ND	ND	ND
	NICKEL, TOTAL	1600	17.3	43.6	ND
	MERCURY, TOTAL	20	ND	ND	ND
	ARSENIC, TOTAL	.43	11.0	X	12.7

Notes:

\* "> CAL" equals "X" when reported value is above characterization action level for this locale.  
J flag - Numerical value is an estimated quantity.  
ND indicates Non-Detect  
Blank cells in result column indicate an analysis was not performed for that analyte.

**Table 4-3**  
**Summary of Analytical Results**

PRA			
PRA Description			
Sample Type			
Sample Id	BEN-ASB002-70002	BEN-ASB003-70001	BEN-ASB003-70002
Depth - ft bgs	2 - 3	0 - 1	2 - 3
Collected Date	09/20/00	09/20/00	09/20/00
Laboratory	Lancaster Laboratories	Lancaster Laboratories	Lancaster Laboratories
Sample Collector	IT Corporation (Fluor Daniel/GTI)	IT Corporation (Fluor Daniel/GTI)	IT Corporation (Fluor Daniel/GTI)
Result Units	MG/KG	MG/KG	MG/KG
Category	Analyte	Action Level	> CAL*
METAL	AROCLOR-1260	1	ND
	BARIUM, TOTAL	5500	61.5
	BERYLLIUM, TOTAL	160	ND
	CADMIUM, TOTAL	39	ND
	CHROMIUM, TOTAL	230	16.3
	LEAD, TOTAL	400	ND
	NICKEL, TOTAL	1600	ND
	MERCURY, TOTAL	20	ND
	ARSENIC, TOTAL	.43	13.3
	X	X	X
			10.6
			X

Notes:

\*\* " > CAL " equals " X " when reported value is above characterization action level for this locale.

II flag: Numerical value is an estimated quantity

ND indicates Non Detect.

ND indicates Non-Detect.

Date annotated: February 26 2001

**Table 4-3**  
**Summary of Analytical Results**

PRA				
PRA Description				
Sample Type				
Sample Id	BEN-ASB004-70001	BEN-ASB004-70002	BEN-ASB005-70001	BEN-ASB005-70001
Depth - ft bgs	0 - 1	2 - 3	0 - 1	0 - 1
Collected Date	09/20/00	09/20/00	09/20/00	09/20/00
Laboratory	Lancaster Laboratories	Lancaster Laboratories	Lancaster Laboratories	Lancaster Laboratories
Sample Collector	IT Corporation (Fluor Daniel/GTI)			
Result Units	MG/KG	MG/KG	MG/KG	MG/KG
	Action Level	Result Flag	> CAL*	Result Flag
		1	ND	ND
METAL	AROCLOR-1260			
	BARIUM, TOTAL	5500	47.5	45.0
	BERYLLIUM, TOTAL	160	ND	ND
	CADMIUM, TOTAL	39	ND	ND
	CHROMIUM, TOTAL	230	9.2	9.0
	LEAD, TOTAL	400	ND	ND
	NICKEL, TOTAL	1600	ND	ND
	MERCURY, TOTAL	20	ND	ND
	ARSENIC, TOTAL	.43	6.4	X
			6.6	X
				8.4
				X

**Notes:**

\* \* " > CAL " equals " X " when reported value is above characterization action level for this locale.

II flag - Numerical value is an estimated quantity.

ND indicates Non Detect.

ND indicates Non-Detect.

locale.

II flag - Numerical value is an estimated quantity.

ND indicates Non Detect.

**Table 4-3**  
**Summary of Analytical Results**

PRA								
PRA Description								
Sample Type								
Sample Id	BEN-ASS005-70002							
Depth - ft bgs	2 - 3							
Collected Date	09/20/00							
Laboratory	Lancaster Laboratories							
Sample Collector	IT Corporation (Fluor Daniel/GTI)							
Result Units	MG/KG							
Category	Analyte	Action Level	Result Flag	> CAL*	Result Flag	> CAL*	Result Flag	> CAL*
METAL	AROCLOR-1260	1	ND		ND		ND	
	BARIUM, TOTAL	5500	91.6		47.7		ND	53.1
	BERYLLIUM, TOTAL	160	ND		ND		ND	
	CADMIUM, TOTAL	39	ND		ND		ND	
	CHROMIUM, TOTAL	230	15.2		13.5		11.0	
	LEAD, TOTAL	400	ND		ND		ND	
	NICKEL, TOTAL	1600	15.7		ND		ND	
	MERCURY, TOTAL	20	ND		ND		ND	
	ARSENIC, TOTAL	4.3	6.5	X	9.1	X	13.3	X

**Notes:**

\*\* > CAL" equals "X" when reported value is above characterization action level for this locale.

**I** flag = Numerical value is an estimated quantity.

Flag - Numerical value is 0

NB indicates Non-Detect

locale.

**Table 4-3**  
**Summary of Analytical Results**

PRA						
PRA Description						
Sample Type						
Sample Id	BEN-ASS003-40001		BEN-ASS004-40001		BEN-ASS005-40001	
Depth - ft bgs	0 - 1		0 - 1		0 - 1	
Collected Date	09/20/00		09/20/00		09/20/00	
Laboratory	Lancaster Laboratories		Lancaster Laboratories		Lancaster Laboratories	
Sample Collector	IT Corporation (Fluor Daniel/GTI)		IT Corporation (Fluor Daniel/GTI)		IT Corporation (Fluor Daniel/GTI)	
Result Units	MG/KG		MG/KG		MG/KG	
Category	Analyte	Action Level	> CAL*	> CAL*	> CAL*	> CAL*
AROCLOR-1260		1	ND	ND	ND	ND
METAL	BARIUM, TOTAL	5500	54.5	65.6		66.4
	BERYLLIUM, TOTAL	160	ND	ND		ND
	CADMIUM, TOTAL	39	ND	ND		ND
	CHROMIUM, TOTAL	230	16.7	10.8		11.4
	LEAD, TOTAL	400	ND	ND		ND
	NICKEL, TOTAL	1600	18.8	12.6		13.0
	MERCURY, TOTAL	20	ND	ND		ND
	ARSENIC, TOTAL	.43	16.0	X	7.1	X
					7.9	X

Notes:

- \* "> CAL" equals "X" when reported value is above characterization action level for this locale.
- J flag - Numerical value is an estimated quantity.
- ND indicates Non-Detect
- Blank cells in result column indicate an analysis was not performed for that analyte.

**Table 4-3**  
**Summary of Analytical Results**

PRA					
PRA Description		Random PCB's			
Sample Type		Normal Sample			
Sample Id		<b>BEN-ASS006-40001</b>		<b>BEN-ASS007-40001</b>	<b>BEN-ASS008-40001</b>
Depth - ft bgs		<b>0 - 1</b>		<b>0 - 1</b>	<b>0 - 1</b>
Collected Date		<b>09/21/00</b>		<b>09/21/00</b>	<b>09/21/00</b>
Laboratory		Lancaster Laboratories		Lancaster Laboratories	
Sample Collector		IT Corporation (Fluor Daniel/GTI)		IT Corporation (Fluor Daniel/GTI)	
Result Units		<b>MG/KG</b>		<b>MG/KG</b>	
Category	Analyte	Action Level	> CAL*	> CAL*	> CAL*
AROCLOR-1260		1	ND	ND	ND
<b>METAL</b>	BARIUM, TOTAL	5500			
	BERYLLIUM, TOTAL	160			
	CADMIUM, TOTAL	39			
	CHROMIUM, TOTAL	230			
	LEAD, TOTAL	400			
	NICKEL, TOTAL	1600			
	MERCURY, TOTAL	20			
	ARSENIC, TOTAL	.43			

Notes:

\* "> CAL" equals "X" when reported value is above characterization action level for this locale.

J flag - Numerical value is an estimated quantity.

ND indicates Non-Detect

Blank cells in result column indicate an analysis was not performed for that analyte.

Date generated: February 26, 2001

**Table 4-3**  
**Summary of Analytical Results**

PRA		5	
PRA Description		Leach Field	
Sample Type		Field Duplicate (Rep)	
Sample Id	BEN-ASS050-40001	BEN-ASB014-71001	BEN-ASB013-70001
Depth - ft bgs	0 - 1	3.5 - 4	3.5 - 4
Collected Date	09/19/00	09/20/00	09/20/00
Laboratory	Lancaster Laboratories	Lancaster Laboratories	Lancaster Laboratories
Sample Collector	IT Corporation (Fluor Daniel/GTI)	IT Corporation (Fluor Daniel/GTI)	IT Corporation (Fluor Daniel/GTI)
Result Units	MG/KG	MG/KG	MG/KG
	Analyte	Action Level	> CAL*
<b>METAL</b>	AROCLOR-1260	1	ND
	BARIUM, TOTAL	5500	73.9
	BERYLLIUM, TOTAL	160	ND
	CADMIUM, TOTAL	39	ND
	CHROMIUM, TOTAL	230	12.4
	LEAD, TOTAL	400	ND
	NICKEL, TOTAL	1600	12.6
	MERCURY, TOTAL	20	ND
	ARSENIC, TOTAL	.43	7.2
			X
			X

Notes:

\* "> CAL" equals "X" when reported value is above characterization action level for this locale.

J flag - Numerical value is an estimated quantity.

ND indicates Non-Detect

Blank cells in result column indicate an analysis was not performed for that analyte.

**Table 4-3**  
**Summary of Analytical Results**

PRA		6
PRA Description	Former Reservoir	
Sample Type	Normal Sample	
Sample Id	BEN-ASB014-70001	BEN-ASB015-70002
Depth - ft bgs	3.5 - 4	0 - 1
Collected Date	09/20/00	09/21/00
Laboratory	Lancaster Laboratories	Lancaster Laboratories
Sample Collector	IT Corporation (Fluor Daniel/GTI)	IT Corporation (Fluor Daniel/GTI)
Result Units	MG/KG	MG/KG
	Action Level	> CAL*
	Analyte	Result Flag
AROCLOR-1260		> CAL*
METAL		Result Flag
BARIUM, TOTAL	1	ND
BERYLLIUM, TOTAL	5500	78.1
CADMIUM, TOTAL	160	ND
CHROMIUM, TOTAL	39	ND
LEAD, TOTAL	230	12.3
NICKEL, TOTAL	400	ND
MERCURY, TOTAL	1600	13.0
ARSENIC, TOTAL	20	ND
		> CAL*
		Result Flag
		> CAL*
		Result Flag
		ND
		X
		9.0
		X

**Notes:**

\*\* " > CAL " equals " X " when reported value is above characterization action level for this locale.

II flag: Numerical value is an estimated quantity

ND indicates Non Detect.

ND indicates Non-Detect.

Date annotated: February 26 2001

**Table 4-3**  
**Summary of Analytical Results**

PRA						7
PRA Description	Queer Creek					
Sample Type	Normal Sample					
Sample Id	BEN-ASB016-70001	BEN-ASB016-70002	BEN-ASD001-30001			
Depth - ft bgs	0 - 1	9 - 10	0 - 1			
Collected Date	09/21/00	09/21/00	09/19/00			
Laboratory	Lancaster Laboratories	Lancaster Laboratories	Lancaster Laboratories			
Sample Collector	IT Corporation (Fluor Daniel/GTI)	IT Corporation (Fluor Daniel/GTI)	IT Corporation (Fluor Daniel/GTI)			
Result Units	MG/KG	MG/KG	MG/KG			
Category	Analyte	Action Level	> CAL*	> CAL*	> CAL*	> CAL*
<b>METAL</b>	AROCLOR-1260	1	ND	ND	ND	ND
	BARIUM, TOTAL	5500	58.3	60.2		45.0
	BERYLLIUM, TOTAL	160	ND	ND		ND
	CADMIUM, TOTAL	39	ND	ND		ND
	CHROMIUM, TOTAL	230	12.9	12.2		7.5
	LEAD, TOTAL	400	ND	ND		ND
	NICKEL, TOTAL	1600	ND	ND		ND
	MERCURY, TOTAL	20	ND	ND		ND
	ARSENIC, TOTAL	.43	14.3	X	6.9	X
					7.9	J
						X

Notes:

\* "> CAL" equals "X" when reported value is above characterization action level for this locale.  
J flag - Numerical value is an estimated quantity.  
ND indicates Non-Detect  
Blank cells in result column indicate an analysis was not performed for that analyte.

**Table 4-3**  
**Summary of Analytical Results**

PRA		8		Unnamed Tributary-North	
PRA Description				Normal Sample	
Sample Type					
Sample Id	BEN-ASD002-30001	BEN-ASD003-30001		BEN-ASD004-30001	
Depth - ft bgs	0 - 1	0 - 1		0 - 1	
Collected Date	09/19/00	09/19/00		09/19/00	
Laboratory	Lancaster Laboratories	Lancaster Laboratories		Lancaster Laboratories	
Sample Collector	IT Corporation (Fluor Daniel/GTI)	IT Corporation (Fluor Daniel/GTI)		IT Corporation (Fluor Daniel/GTI)	
Result Units	MG/KG	MG/KG		MG/KG	
	Analyte	Action Level	> CAL*	Result Flag	> CAL*
<b>METAL</b>	AROCLOR-1260	1	ND	ND	ND
	BARIUM, TOTAL	5500	41.1 J	30.7 J	63.7 J
	BERYLLIUM, TOTAL	160	ND	ND	ND
	CADMIUM, TOTAL	39	ND	ND	ND
	CHROMIUM, TOTAL	230	22.1	10.8	14.3
	LEAD, TOTAL	400	ND	ND	ND
	NICKEL, TOTAL	1600	16.3	ND	ND
	MERCURY, TOTAL	20	ND	ND	15.2
	ARSENIC, TOTAL	.43	49.6 J	X	0.28
				9.5 J	X
				16.4 J	X

Notes:

\* "> CAL" equals "X" when reported value is above characterization action level for this locale.

J flag - Numerical value is an estimated quantity.

ND indicates Non-Detect

Blank cells in result column indicate an analysis was not performed for that analyte.

Date generated: February 26, 2001

**Table 4-3**  
**Summary of Analytical Results**

PRA							<b>9</b>
PRA Description	Seep	Normal Sample					
Sample Type							
Sample Id	BEN-ASD005-30001	BEN-ASD006-30001	BEN-ASD007-30001				
Depth - ft bgs	0 - 1	0 - 1	0 - 1				
Collected Date	09/19/00	09/19/00	09/19/00				
Laboratory	Lancaster Laboratories	Lancaster Laboratories	Lancaster Laboratories				
Sample Collector	IT Corporation (Fluor Daniel/GTI)	IT Corporation (Fluor Daniel/GTI)	IT Corporation (Fluor Daniel/GTI)				
Result Units	MG/KG	MG/KG	MG/KG				
	Analyte	Action Level	Result Flag	> CAL*	Result Flag	> CAL*	> CAL*
	AROCLOR-1260		1 ND		ND		ND
METAL	BARIUM, TOTAL	5500	59.8 J	64.2 J		60.1 J	
	BERYLLIUM, TOTAL	160	ND	ND		ND	
	CADMIUM, TOTAL	39	ND	ND		ND	
	CHROMIUM, TOTAL	230	25.5	27.1		12.7	
	LEAD, TOTAL	400	ND	ND		ND	
	NICKEL, TOTAL	1600	17.1	19.8		13.1	
	MERCURY, TOTAL	20	ND	ND		1.5	
	ARSENIC, TOTAL	.43	20.5 J	X	20.2 J	X	11.3 J

## Notes:

\*\* "CAL" equals "X" when reported value is above characterization action level for this locale.

II flag - Numerical value is an estimated quantity

ND indicates Non Detect.

ND indicates Non-Detect.

Date annotated: February 26 2001

**Table 4-3**  
**Summary of Analytical Results**

PRA	10						
PRA Description	Discharge Pipes						
Sample Type	Field Duplicate (Rep)						
Sample Id	BEN-ASD008-31001	BEN-ASD008-30001	BEN-ASD009-30001	BEN-ASD009-30001	BEN-ASD009-30001	BEN-ASD009-30001	BEN-ASD009-30001
Depth - ft bgs	0 - 1	0 - 1	0 - 1	0 - 1	0 - 1	0 - 1	0 - 1
Collected Date	09/19/00	09/19/00	09/19/00	09/19/00	09/19/00	09/19/00	09/19/00
Laboratory	Lancaster Laboratories						
Sample Collector	IT Corporation (Fluor Daniel/GTI)						
Result Units	MG/KG						
Category	Analyte	Action Level	> CAL*				
AROCLOR-1260		1	ND	ND	ND	ND	ND
METAL	BARIUM, TOTAL	5500	38.5	30.2			37.8
	BERYLLIUM, TOTAL	160	ND	ND			ND
	CADMIUM, TOTAL	39	ND	ND			ND
	CHROMIUM, TOTAL	230	21.0 J	8.5 J			10.3
	LEAD, TOTAL	400	ND	ND			ND
	NICKEL, TOTAL	1600	15.6	ND			ND
	MERCURY, TOTAL	20	0.25	ND			ND
	ARSENIC, TOTAL	.43	10.5	X	11.3	X	4.9 X

Notes:

\* "> CAL" equals "X" when reported value is above characterization action level for this locale.

J flag - Numerical value is an estimated quantity.

ND indicates Non-Detect

Blank cells in result column indicate an analysis was not performed for that analyte.

Date generated: February 26, 2001

**Table 4-3**  
**Summary of Analytical Results**

PRA	11	Natural Gas Blowdown Vents, ESD Vents (9)							
PRA Description	Normal Sample								
Sample Type	Normal Sample								
Sample Id	BEN-ASD010-30001	BEN-ASS012-40001	BEN-ASS013-40001						
Depth - ft bgs	0 - 1	0 - 0.5	0 - 0.5						
Collected Date	09/19/00	09/21/00	09/21/00						
Laboratory	Lancaster Laboratories	Lancaster Laboratories	Lancaster Laboratories						
Sample Collector	IT Corporation (Fluor Daniel/GTI)	IT Corporation (Fluor Daniel/GTI)	IT Corporation (Fluor Daniel/GTI)						
Result Units	MG/KG	MG/KG	MG/KG						
	Analyte	Action Level	> CAL*	> CAL*	> CAL*				
AROCLOR-1260		1	ND	ND	ND				
METAL	BARIUM, TOTAL	5500	12.0						
	BERYLLIUM, TOTAL	160	ND						
	CADMIUM, TOTAL	39	ND						
	CHROMIUM, TOTAL	230	3.8						
	LEAD, TOTAL	400	ND						
	NICKEL, TOTAL	1600	ND						
	MERCURY, TOTAL	20	ND						
	ARSENIC, TOTAL	.43	3.4	X					

Notes:

\* "> CAL" equals "X" when reported value is above characterization action level for this locale.

J flag - Numerical value is an estimated quantity.

ND indicates Non-Detect

Blank cells in result column indicate an analysis was not performed for that analyte.

Date generated: February 26, 2001

**Table 4-3**  
**Summary of Analytical Results**

PRA	12	PRA Description	Drum Storage Platform	13
Sample Type	Normal Sample		Former Scrubbers	
Sample Id	BEN-ASS021-40001	BEN-ASS022-40001	BEN-ASB017-70001	Normal Sample
Depth - ft bgs	0 - 1	0 - 1	0 - 1	
Collected Date	09/19/00	09/19/00	09/21/00	
Laboratory	Lancaster Laboratories	Lancaster Laboratories	Lancaster Laboratories	
Sample Collector	IT Corporation (Fluor Daniel/GTI)	IT Corporation (Fluor Daniel/GTI)	IT Corporation (Fluor Daniel/GTI)	
Result Units	MG/KG	MG/KG	MG/KG	
Category	Analyte	Action Level	> CAL*	> CAL*
METAL	AROCLOR-1260	1	ND	ND
	BARIUM, TOTAL	5500	125 J	58.7 J
	BERYLLIUM, TOTAL	160	ND	ND
	CADMIUM, TOTAL	39	ND	ND
	CHROMIUM, TOTAL	230	23.2	10.8
	LEAD, TOTAL	400	88.9 J	22.5 J
	NICKEL, TOTAL	1600	17.2	10.9
	MERCURY, TOTAL	20	3.1	0.47
	ARSENIC, TOTAL	.43	12.9	X
			11.9	X

Notes:

\* "> CAL" equals "X" when reported value is above characterization action level for this locale.

J flag - Numerical value is an estimated quantity.

ND indicates Non-Detect

Blank cells in result column indicate an analysis was not performed for that analyte.

Date generated: February 26, 2001

**Table 4-3**  
**Summary of Analytical Results**

PRA				14
PRA Description	Telemetering/Storage Buildings			
Sample Type	Normal Sample			
Sample Id	BEN-ASB018-70002	BEN-ASB018-70003	BEN-ASS023-40001	
Depth - ft bgs	2 - 2.5	3.5 - 4	0 - 1	
Collected Date	09/21/00	09/21/00	09/19/00	
Laboratory	Lancaster Laboratories	Lancaster Laboratories	Lancaster Laboratories	
Sample Collector	IT Corporation (Fluor Daniel/GTI)	IT Corporation (Fluor Daniel/GTI)	IT Corporation (Fluor Daniel/GTI)	
Result Units	MG/KG	MG/KG	MG/KG	
Category	Analyte	Action Level	> CAL*	> CAL*
AROCLOR-1260		1	ND	ND
METAL	BARIUM, TOTAL	5500		76.2
	BERYLLIUM, TOTAL	160		ND
	CADMIUM, TOTAL	39		ND
	CHROMIUM, TOTAL	230		15.3
	LEAD, TOTAL	400		ND
	NICKEL, TOTAL	1600		ND
	MERCURY, TOTAL	20		25.7
	ARSENIC, TOTAL	.43		X
			11.8	X

Notes:

\* "> CAL" equals "X" when reported value is above characterization action level for this locale.

J flag - Numerical value is an estimated quantity.

ND indicates Non-Detect

Blank cells in result column indicate an analysis was not performed for that analyte.

Date generated: February 26, 2001

**Table 4-3**  
**Summary of Analytical Results**

PRA	15		
PRA Description	Former and Current Regulator Buildings		
Sample Type	Normal Sample		
Sample Id	BEN-ASS024-40001	BEN-ASS031-40001	BEN-ASS032-40001
Depth - ft bgs	0 - 1	0 - 1	0 - 1
Collected Date	09/19/00	09/18/00	09/18/00
Laboratory	Lancaster Laboratories	Lancaster Laboratories	Lancaster Laboratories
Sample Collector	IT Corporation (Fluor Daniel/GTI)	IT Corporation (Fluor Daniel/GTI)	IT Corporation (Fluor Daniel/GTI)
Result Units	MG/KG	MG/KG	MG/KG
Category	Analyte	Action Level	> CAL*
AROCLOR-1260		1	ND
METAL	BARIUM, TOTAL	5500	78.8
	BERYLLIUM, TOTAL	160	ND
	CADMIUM, TOTAL	39	ND
	CHROMIUM, TOTAL	230	14.7
	LEAD, TOTAL	400	ND
	NICKEL, TOTAL	1600	ND
	MERCURY, TOTAL	20	7.3
	ARSENIC, TOTAL	.43	10.5
		X	

Notes:

\* "> CAL" equals "X" when reported value is above characterization action level for this locale.

J flag - Numerical value is an estimated quantity.

ND indicates Non-Detect

Blank cells in result column indicate an analysis was not performed for that analyte.

Date generated: February 26, 2001

**Table 4-3**  
**Summary of Analytical Results**

PRA	17						
PRA Description	Stained Areas						
Sample Type	Field Duplicate (Rep)						
Sample Id	BEN-ASB019-71001	BEN-ASB019-70001	BEN-ASB019-70002				
Depth - ft bgs	0 - 1	0 - 1	2 - 2.5				
Collected Date	09/21/00	09/21/00	09/21/00				
Laboratory	Lancaster Laboratories	Lancaster Laboratories	Lancaster Laboratories				
Sample Collector	IT Corporation (Fluor Daniel/GTI)	IT Corporation (Fluor Daniel/GTI)	IT Corporation (Fluor Daniel/GTI)				
Result Units	MG/KG	MG/KG	MG/KG				
	Analyte	Action Level	> CAL*	Result Flag	> CAL*	Result Flag	> CAL*
METAL	AROCLOR-1260	1	ND	ND	ND	ND	ND
	BARIUM, TOTAL	5500	75.3 J	131 J	131 J	131 J	54.3
	BERYLLIUM, TOTAL	160	ND	ND	ND	ND	ND
	CADMIUM, TOTAL	39	ND	ND	ND	ND	ND
	CHROMIUM, TOTAL	230	13.2	13.0	13.0	13.0	13.5
	LEAD, TOTAL	400	ND	ND	ND	ND	ND
	NICKEL, TOTAL	1600	11.5	12.6	12.6	12.6	ND
	MERCURY, TOTAL	20	ND	ND	ND	ND	ND
	ARSENIC, TOTAL	.43	10.0	X	14.6	X	11.6 X

Notes:

\* "> CAL" equals "X" when reported value is above characterization action level for this locale.  
J flag - Numerical value is an estimated quantity.  
ND indicates Non-Detect  
Blank cells in result column indicate an analysis was not performed for that analyte.

Date generated: February 26, 2001

**Table 4-3**  
**Summary of Analytical Results**

PRA	
PRA Description	
Sample Type	
Sample Id	BEN-ASB019-70003
Depth - ft bgs	3.5 - 4
Collected Date	09/21/00
Laboratory	Lancaster Laboratories
Sample Collector	IT Corporation (Fluor Daniel/GTI)
Result Units	MG/KG
Analyte	Action Level
AROCLOR-1260	1
BARIUM, TOTAL	5500
BERYLLIUM, TOTAL	160
CADMIUM, TOTAL	39
CHROMIUM, TOTAL	230
LEAD, TOTAL	400
NICKEL, TOTAL	1600
MERCURY, TOTAL	20
ARSENIC, TOTAL	.43
Result Flag	> CAL*
	ND
	66.8
	ND
	ND
	13.7
	ND
	ND
	ND
	X
> CAL*	0.065
	80.4
	ND
	ND
	16.5
	ND
	13.6
	0.47
	13.5
	X
Result Flag	> CAL*
	ND
	82.1
	ND
	ND
	ND
	15.4
	ND
	14.0
	0.35
	9.7
	X
MG/KG	

Notes:

\* "> CAL" equals "X" when reported value is above characterization action level for this locale.  
J flag - Numerical value is an estimated quantity.  
ND indicates Non-Detect  
Blank cells in result column indicate an analysis was not performed for that analyte.

Date generated: February 26, 2001

**Table 4-3**  
**Summary of Analytical Results**

PRA	18			
PRA Description	Blasting Sand Piles			
Sample Type	Normal Sample			
Sample Id	BEN-ASB020-70003	BEN-ASS033-40001	BEN-ASS034-40001	
Depth - ft bgs	3.5 - 4	0 - 1	0 - 1	
Collected Date	09/21/00	09/19/00	09/19/00	
Laboratory	Lancaster Laboratories	Lancaster Laboratories	Lancaster Laboratories	
Sample Collector	IT Corporation (Fluor Daniel/GTI)	IT Corporation (Fluor Daniel/GTI)	IT Corporation (Fluor Daniel/GTI)	
Result Units	MG/KG	MG/KG	MG/KG	
	Analyte	Action Level	> CAL*	> CAL*
AROCLOR-1260		1	ND	
METAL	BARIUM, TOTAL	5500	101	76.6 J
	BERYLLIUM, TOTAL	160	ND	ND
	CADMIUM, TOTAL	39	ND	ND
	CHROMIUM, TOTAL	230	16.4	17.9
	LEAD, TOTAL	400	ND	ND
	NICKEL, TOTAL	1600	15.2	14.3
	MERCURY, TOTAL	20	ND	ND
	ARSENIC, TOTAL	.43	9.0	X
			13.3	X
			14.9	X

Notes:

\* "> CAL" equals "X" when reported value is above characterization action level for this locale.  
 J flag - Numerical value is an estimated quantity.  
 ND indicates Non-Detect  
 Blank cells in result column indicate an analysis was not performed for that analyte.

Date generated: February 26, 2001

**Table 4-3**  
**Summary of Analytical Results**

Notes:

\*\* " > CAL " equals " X " when reported value is above characterization action level for this locale.

II flag : Numerical value is an estimated quantity

ND indicates Non Detect.

ND indicates Non-Detect.

Date submitted: February 26, 2001

**Table 4-3**  
**Summary of Analytical Results**

PRA		20	
PRA Description		Surplus Storage Areas	
Sample Type		Normal Sample	
Sample Id	BEN-ASS038-40001	BEN-ASS039-40001	BEN-ASS040-40001
Depth - ft bgs	0 - 1	0 - 1	0 - 1
Collected Date	09/19/00	09/19/00	09/19/00
Laboratory	Lancaster Laboratories	Lancaster Laboratories	Lancaster Laboratories
Sample Collector	IT Corporation (Fluor Daniel/GTI)	IT Corporation (Fluor Daniel/GTI)	IT Corporation (Fluor Daniel/GTI)
Result Units	MG/KG	MG/KG	MG/KG
Category	Analyte	Action Level	> CAL*
AROCLOR-1260		1	ND
METAL	BARIUM, TOTAL	5500	
	BERYLLIUM, TOTAL	160	
	CADMIUM, TOTAL	39	
	CHROMIUM, TOTAL	230	
	LEAD, TOTAL	400	
	NICKEL, TOTAL	1600	
	MERCURY, TOTAL	20	
	ARSENIC, TOTAL	.43	
			21.5
			X

Notes:

\* "> CAL" equals "X" when reported value is above characterization action level for this locale.

J flag - Numerical value is an estimated quantity.

ND indicates Non-Detect

Blank cells in result column indicate an analysis was not performed for that analyte.

**Table 4-3**  
**Summary of Analytical Results**

Notes:

\* \* " > CAL " equals " X " when reported value is above characterization action level for this locale.

II flag - Numerical value is an estimated quantity.

ND indicates Non Detect.

ND indicates Non-Detect.

locale.

**Table 4-3**  
**Summary of Analytical Results**

PRA			
PRA Description			
Sample Type			
Sample Id	BEN-ASS044-40001	BEN-ASS045-40001	BEN-ASS046-40001
Depth - ft bgs	0 - 1	0 - 1	0 - 1
Collected Date	09/19/00	09/19/00	09/19/00
Laboratory	Lancaster Laboratories	Lancaster Laboratories	Lancaster Laboratories
Sample Collector	IT Corporation (Fluor Daniel/GTI)	IT Corporation (Fluor Daniel/GTI)	IT Corporation (Fluor Daniel/GTI)
Result Units	MG/KG	MG/KG	MG/KG
Action Level	Result Flag	> CAL*	Result Flag
ANROCLOR-1260	1	ND	ND
METAL	BARIUM, TOTAL	5500	118
	BERYLLIUM, TOTAL	160	ND
	CADMIUM, TOTAL	39	ND
	CHROMIUM, TOTAL	230	14.5
	LEAD, TOTAL	400	ND
	NICKEL, TOTAL	1600	ND
	MERCURY, TOTAL	20	ND
	ARSENIC, TOTAL	.43	10.0

**Notes:**

\*\* " > CAL " equals " X " when reported value is above characterization action level for this locale.

II flag: Numerical value is an estimated quantity

ND indicates Non Detect.

ND indicates Non-Detect.

Date annotated: February 26 2001

**Table 4-3**  
**Summary of Analytical Results**

PRA		21
PRA Description	Former Oil Sump	
Sample Type	Normal Sample	
Sample Id	BEN-ASS047-40001	BEN-ASB021-70001
Depth - ft bgs	0 - 1	0 - 1
Collected Date	09/19/00	09/21/00
Laboratory	Lancaster Laboratories	Lancaster Laboratories
Sample Collector	IT Corporation (Fluor Daniel/GTI)	IT Corporation (Fluor Daniel/GTI)
Result Units	MG/KG	MG/KG
	Action Level	> CAL*
	Analyte	Result Flag
AROCLOR-1260		> CAL*
METAL		Result Flag
BARIUM, TOTAL	1	ND
BERYLLIUM, TOTAL	5500	68.3
CADMIUM, TOTAL	160	ND
CHROMIUM, TOTAL	39	ND
LEAD, TOTAL	230	15.2
NICKEL, TOTAL	400	24.3
MERCURY, TOTAL	1600	ND
ARSENIC, TOTAL	20	0.85
	.43	12.5
	X	X
		13.9
		X
		7.9
		X

**Notes:**

\* \* \* " > CAL " equals " X " when reported value is above characterization action level for this locale.

$\mathbb{I}$  flag - Numerical value is an estimated quantity.

ND indicates Non Detect.

ND indicates Non-Detect.

locale.

Date generated: February 26, 2001

**Table 4-3**  
**Summary of Analytical Results**

PRA		23	
PRA Description		Compressor Building	
Sample Type		Field Duplicate (Rep)	
Sample Id	BEN-ASB021-70003	BEN-ACH006-81001	BEN-ACH001-80001
Depth - ft bgs	3.5 - 4	0 - 0	0 - 0
Collected Date	09/21/00	09/18/00	09/18/00
Laboratory	Lancaster Laboratories	Lancaster Laboratories	Lancaster Laboratories
Sample Collector	IT Corporation (Fluor Daniel/GTI)	IT Corporation (Fluor Daniel/GTI)	IT Corporation (Fluor Daniel/GTI)
Result Units	MG/KG	MG/KG	MG/KG
Category	Analyte	Action Level	> CAL*
<b>METAL</b>	AROCLOR-1260	1	ND
	BARIUM, TOTAL	5500	89.2
	BERYLLIUM, TOTAL	160	ND
	CADMIUM, TOTAL	39	ND
	CHROMIUM, TOTAL	230	13.9
	LEAD, TOTAL	400	ND
	NICKEL, TOTAL	1600	12.9
	MERCURY, TOTAL	20	ND
	ARSENIC, TOTAL	.43	8.7
			X

Notes:

\* "> CAL" equals "X" when reported value is above characterization action level for this locale.  
J flag - Numerical value is an estimated quantity.  
ND indicates Non-Detect  
Blank cells in result column indicate an analysis was not performed for that analyte.

Indeno(1,2,3-c,d)pyrene	1.4 mg/kg (exceeded CAL of 0.87 mg/kg)
Benzo(a)anthracene	3.3 mg/kg (exceeded CAL of 0.87 mg/kg)
Benzo(a)pyrene	2.4 mg/kg (exceeded CAL of 0.087 mg/kg)
Benzo(b)fluoranthene	2.9 mg/kg (exceeded CAL of 0.87 mg/kg)

A source for PAHs detected in BEN-ASS004-40001 is not apparent. The surface sample location is not in the operating area of the site and there is no evidence of historical operations in this area. In addition, there were no PAHs detected above this level in the 55 soil samples collected in the current and historical operating areas of the site.

Table 1 Metal constituents, with the exception of Arsenic, were detected below the CALs. Arsenic was detected above the CAL (0.43 mg/kg) in all 15 background samples at concentrations ranging from 6.4 mg/kg (BEN-ASB004-70001) to 61.9 mg/kg (BEN-ASB003-70001). Other Table 1 metals constituents detected in the background samples were Barium, Chromium, and Nickel.

The source of the arsenic detection is not apparent. The sample location with the highest concentration (BEN-ASB003-70001) is located outside and topographically upgradient of the historical and current operating areas of the facility. In addition, Arsenic was not detected above this level in the site samples.

The maximum detected concentration in the background samples and a concentration equal to two times the arithmetic mean of concentrations detected in background were determined for each constituent detected (Appendix I - Site Background Calculations). As provided for in the CWP, the higher of these two values was used to establish the background concentration for specific constituents at the site. The following are the results of the site background calculations:

Analyte	Background Calculation Level (mg/kg)
Arsenic	61.90
Barium	133.13
Chromium	28.48
Nickel	43.60
Benzo(g,h,i)perylene	1.30
Indeno(1,2,3-cd)pyrene	1.40
Acenaphthene	0.61
Anthracene	2.00
Benzo(a)anthracene	3.30
Benzo(a)pyrene	2.40
Benzo(b)fluoranthene	2.90
Benzo(k)fluoranthene	1.10
Chrysene	3.00
Fluoranthene	11.0
Fluorene	0.71
Phenanthrene	8.3
Pyrene	8.2

#### ***4.3.2 PCB Random Sampling Analytical Results***

Four surface soil samples (0.0-1.0 feet bgs) were collected and submitted to the laboratory for PCB analyses. Analytical results indicated that PCBs were detected in one of the soil samples. Aroclor-1254 was detected in sample BEN-ASS008-40001 (0.089 mg/kg) at a concentration less than the CAL (1 mg/kg) for PCBs.

#### ***4.3.3 Site Characterization Analytical Results***

##### **PRA #1 – 250-gallon Used Oil AT**

Three surface soil samples (0.0-1.0 foot bgs) and one subsurface soil sample (2.0-2.5 feet bgs) were collected and submitted to the laboratory for BTEX, PCB, PAH, and Lead analyses. Analytical results for the soil samples indicated that BTEX, PCB, PAH, and Lead constituents were either not detected or detected below the CALs.

One surface water sample was collected from the secondary containment and was submitted to the laboratory for Table 1 analyses. Table 1 constituents were not detected in the surface water sample.